WHAT IS CLAIMED IS:

1. A method for manufacturing cemented tungsten carbide components, comprising:

forming a composite material out of tungsten carbide powder and binder powder;

pressing the composite material into a plurality of components;

heating the plurality of components under pressure to liquefy the binder;

cooling the plurality of components until the binder solidifies; and

cascading the plurality of components in a cascading machine under high-energy conditions.

2. The method of Claim 1, wherein the cascading machine is operated at a spindle speed of approximately 100 to 300 RPM.

3. The method of Claim 2, wherein the spindle speed is selected based upon an average mass of the plurality of components.

4. The method of Claim 1, wherein the plurality of components is cascaded for approximately 10 to 90 minutes.

5. The method of Claim 1, wherein the cascading machine comprises a plurality of barrels radially disposed around a spindle, each of the plurality of barrels being configured to contain at least a fraction of the plurality of components.

6. The method of Claim 5, wherein each of the plurality of barrels is axially, irrotationally coupled about an axis of the barrel parallel to a central axis of the spindle.

7. The method of Claim 5, wherein the plurality of barrels comprise hexagonal barrels.

8. The method of Claim 5, further comprising selecting a volume of each of the plurality of barrels to control the amount of energy imparted to the plurality of components within the plurality of barrels.

9. The method of Claim 5, wherein cascading the plurality of components comprises placing the plurality of components in the plurality of barrels, the plurality of barrels being filled with liquid and detergent, and cascading the plurality of barrels at high speeds.

10. The method of Claim 1, further comprising grinding each of the plurality of components to a desired size.

11. The method of Claim 1, further comprising cascading the plurality of components in the cascading machine under low-energy conditions, prior to cascading the plurality of components in the cascading machine under high-energy conditions.

12. The method of Claim 1, further comprising selecting a time and a spindle speed for the cascading machine based upon the material grade, size, and geometry of the plurality of components

13. The method of Claim 1, wherein the binder is cobalt.

14. The method of Claim 1, wherein the plurality of components are cascaded until hardness and toughness of the plurality of components are substantially increased.

15. The method of Claim 1, wherein heating the plurality of components to liquefy the binder includes heating the plurality of components under pressure to liquefy the binder.

16. A method of increasing the surface hardness of cemented tungsten carbide components, comprising:

cascading a plurality of tungsten carbide components in a cascading machine under high-energy conditions.

17. The method of Claim 16, wherein the cascading machine is operated at a spindle speed of approximately 100 to 300 RPM.

18. The method of Claim 17, wherein the spindle speed is selected based upon an average mass of the plurality of components.

19. The method of Claim 16, further comprising selecting a spindle speed of the cascading machine based upon the material grade, size, and geometry of the plurality of components.

20. The method of Claim 16, wherein the plurality of components is cascaded for approximately 10 to 90 minutes.

21. The method of Claim 16, wherein the cascading machine comprises a plurality of barrels radially disposed around a spindle, each of the plurality of barrels being configured to contain at least a fraction of the plurality of components.

22. The method of Claim 21, further comprising selecting a volume of each of the plurality barrels to control the amount of energy imparted to the plurality of components within the plurality of barrels.

23. The method of Claim 21, wherein each of the plurality of barrels is axially, irrotationally coupled about an axis of the barrel parallel to a central axis of the spindle.

24. The method of Claim 21, wherein the plurality of barrels comprise hexagonal barrels.

25. The method of Claim 21, wherein cascading the plurality of components comprises placing the plurality of components in the plurality of barrels, the plurality of barrels being filled with liquid and detergent, and cascading the plurality of barrels at high speeds.

26. The method of Claim 16, further comprising cascading the plurality of components in the cascading machine under low energy conditions, prior to cascading the plurality of components in the cascading machine under high-energy conditions.

27. The method of Claim 16, wherein the plurality of components are cascaded until hardness and toughness of the plurality of components are substantially increased.

28. A method of increasing the toughness of cemented tungsten carbide components, comprising:

cascading a plurality of tungsten carbide components in a cascading machine under high-energy conditions.

29. The method of Claim 28, wherein the cascading machine is operated at a spindle speed of approximately 100 to 300 RPM.

30. The method of Claim 29, wherein the spindle speed is selected based upon an average mass of the plurality of components.

31. The method of Claim 28, further comprising selecting a spindle speed of the cascading machine based upon the material grade, size, and geometry of the plurality of components.

32. The method of Claim 28, wherein the plurality of components is cascaded for approximately 10 to 90 minutes.

33. The method of Claim 28, wherein the cascading machine comprises a plurality of barrels radially disposed around a spindle, each of the plurality of barrels being configured to contain at least a fraction of the plurality of components.

34. The method of Claim 33, further comprising selecting a volume of each of the plurality barrels to control the amount of energy imparted to the plurality of components within the plurality of barrels.

35. The method of Claim 33, wherein each of the plurality of barrels is axially, irrotationally coupled about an axis of the barrel parallel to a central axis of the spindle.

36. The method of Claim 33, wherein the plurality of barrels comprise hexagonal barrels.

37. The method of Claim 33, wherein cascading the plurality of components comprises placing the plurality of components in the plurality of barrels, the plurality of barrels being filled with liquid and detergent, and cascading the plurality of barrels at high speeds.

38. The method of Claim 28, further comprising cascading the plurality of components in the cascading machine under low energy conditions, prior to cascading the plurality of components in the cascading machine under high-energy conditions.

39. The method of Claim 28, wherein the plurality of components are cascaded until hardness and toughness of the plurality of components are substantially increased.

40. A method of increasing the surface hardness of cemented abrasive components, comprising:

cascading a plurality of cemented abrasive components in a cascading machine under high-energy conditions.

41. The method of Claim 40, wherein the plurality of cemented abrasive components includes tungsten carbide components.

42. The method of Claim 40, wherein the plurality of cemented abrasive components includes polycrystalline diamond (PCD) components.